



Investigating Tule Elk

On-Site Activities

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How Do Researchers Survey Tule Elk?



On-site Lesson Plan

Students will use their field journals to record observations during their visit to the tule elk range at Point Reyes National Seashore. Each student will survey the habitat and elk populations using methods and data sheets similar to those used by researchers.

Time required: 2 hours

Location: Tomales Point Trail, Tule Elk Range, Point Reyes NS

Group size: all

Subject(s): science, math, writing

Concept(s) covered: tule elk identification and behaviors

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National Park Service

Adapted by: Kim Linse and Melinda Repko, National Park
Service

Last updated: 06/01/01

Student Outcomes

At the end of this activity, the students will be able to:

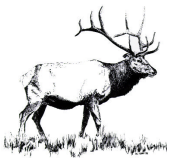
- Identify and record tule elk behaviors in field journals while visiting Point Reyes National Seashore.

California Science Standards Links (grades 6-8)

This activity is linked to the California Science Standards in the following areas:

- 6th grade
- 5a - food webs
 - 5b - organisms and the physical environment
 - 5e - numbers and types of organisms an ecosystem can support depends on the resources available
 - 7b - appropriate tools and technology to perform tests, collect and display data
 - 7d - communicate the steps and results from an investigation
 - 7f - interpret a simple scale map
 - 7h - identify changes in natural phenomena over time





- 7th grade 7a - appropriate tools and technology to perform tests, collect and display data
7c - communicate logical connections
7d - construct scale models, maps, and appropriately labeled diagrams to communicate scientific knowledge

National Science Standard Links (Grades 5-8)

This activity is linked to the National Science Standards in the following areas:

- Content Standard A-Use appropriate tools and techniques to gather, analyze, and interpret data; understanding about scientific inquiry
- Content Standard G-Science as a human endeavor; Nature of Science: students formulate and test their explanations of nature using observation, experiments, and theoretical and mathematical models

Materials

Available for checkout at Bear Valley Visitor Center or use at Clem Miller:

- Tule Elk Kit

Procedures

1. Stop at Bear Valley Visitor Center

Pick up your reserved Tule Elk Kit at the Bear Valley Visitor Center in Olema. This is also a good place to fill water bottles, use the restroom, or have lunch at the picnic area. See the map of Point Reyes National Seashore located in the Attachments section of Teacher Preparation for the exact location of the Bear Valley Visitor Center.

2. Drive to Tule Elk Reserve

Pick up a map and get directions to the Tule Elk Reserve at the visitor center. Instruct students to watch for the ten-foot high fence separating the tule elk from the cattle. Once you go beyond this fence, you may see tule elk from your vehicle.

3. Review Safety Messages

Use the information on **Things to Remember While on Field Trip** to discuss safety messages and what to do in the event of an accident.

4. Stop at Trailhead

The **Habitat Survey at Trailhead** Field Journal Sheet should be filled out at the beginning of the trail.

5. Proceed to Elk Viewing Location

Instruct the students to keep their eyes out for a herd of elk. Once the herd is spotted, instruct the students to be quiet and move slowly. Three field journal sheets will be filled out while observing the herd. If there are multiple locations where elk are visible, you may consider dividing your students and sending smaller groups with chaperones to the other areas.



The Elk Population Survey, Elk Behavior Survey, and Mapping field journal sheets will all be filled out with the information from the same herd. Normally elk are visible at White Gulch, which is about a half hour hike from the trailhead.

6. Find Location for Habitat Survey Field Journal Sheet

Consider hiking to an area away from the tule elk for this field journal sheet. You may break students into smaller groups and assign them an area to sit down while completing this field journal sheet.

7. Locate an Exclosure

While hiking back to your vehicles, instruct the students to keep their eyes out for a small fenced in area on the Tule Elk Range. If one is spotted, you may hike your class out to the location (single file is best). Students should keep their eyes out for badger holes which could trip a student not paying attention. Complete the **Exclosure** Field Journal Sheet at the exclosure location.

8. Find Location for Human Influences on Tomales Point Field Journal Sheet

While hiking back to your vehicles or at the trailhead, find another location to complete the Human Influences on **Tomales Point** Field Journal Sheet. Again, spread the students out with chaperones interspersed between the entire group.

9. Wrap-Up

Make sure students have everything they brought on the field trip. Consider driving the vehicles down to McClures beach where there is a pit toilet. Ensure that there is enough time to return the Tule Elk Kit to the Bear Valley Visitor Center before 5:00pm.



Field Journal Sheet

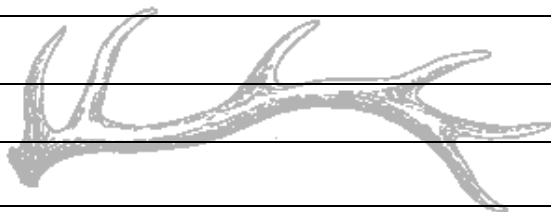
Things to Remember While on Field Trip

Three safety precautions:

1.

2.

3.



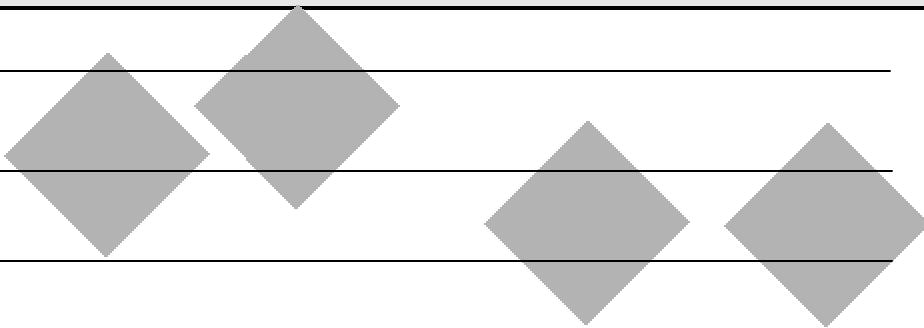
Four resource protection behaviors:

1.

2.

3.

4.

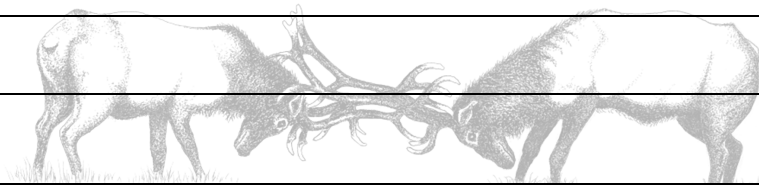


If I were a tule elk, I would want...

1.

2.

3.





Field Journal Sheet

Habitat Survey at Trailhead

Take a moment to observe everything surrounding the area where tule elk are or could be located. Use what you see and know to answer the following:

Date	
Time	
Season	
Air temperature	
Percentage of cloud cover	
Rain	
Wind speed	

Describe the location

--





Field Journal Sheet

Elk Population Survey

In the chart below, record your observations while very quietly watching tule elk.

Location:			Time:	
Bulls	Cows		Calves (males/ females)	Total number of elk
	with radio collars*	without radio collars		

*Record the radio collar color combinations (reading from top to bottom)

--

List any "signs" of elk that you observe

--

Other observations

--

Field Guide to Elk Behaviors



Field Journal Sheet

The following guide explains common behaviors that you might witness during your field trip.



Bugling

The bull puts his neck out, his muzzle up, and lets out a long, high-pitched whistle followed by a series of low grunt.

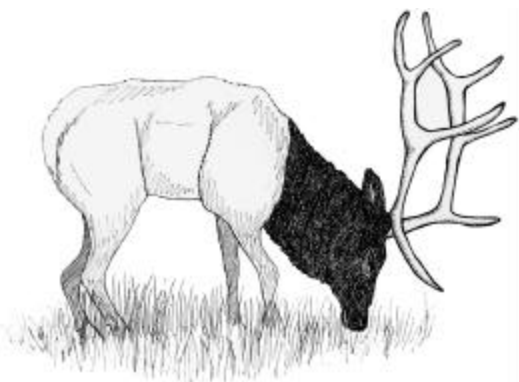


Boxing

Two cows rear up on their back legs and clash hooves. This display is believed to be a sign of aggression. Antler-less males also "box."

Nursing

feeding at the breast



Grazing

Eating grass

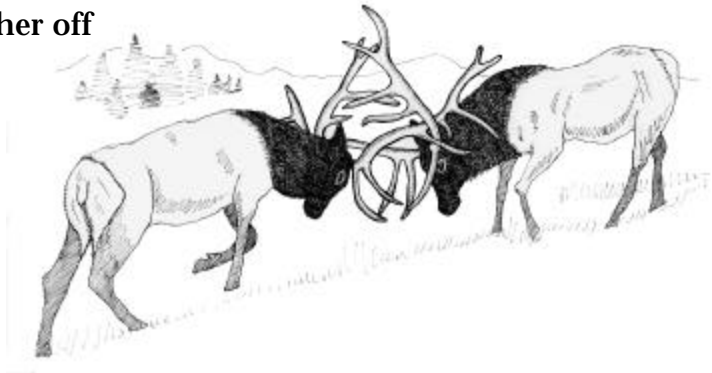


Field Guide to Elk Behaviors



Locking Antlers

During a serious battle, two bulls may lock antlers and try to throw one another off balance.



Thrashing

A bull uses his antlers to thrash the ground or vegetation.

Charge

When males lunge at one another either as a threat or in the beginning of a battle.



Grimace

A bull sticks his head forward and upward while curling back his upper lip. He is "testing" the air to sense if a female is ready to breed.



Field Journal Sheet

Elk Behavior Survey

Carefully observe elk behavior. Use the Field Guide to Elk Behaviors on the previous page as a reference tool. Record your observations in the following chart. Include the numbers(s) and sex of the elk that you see displaying these behaviors.

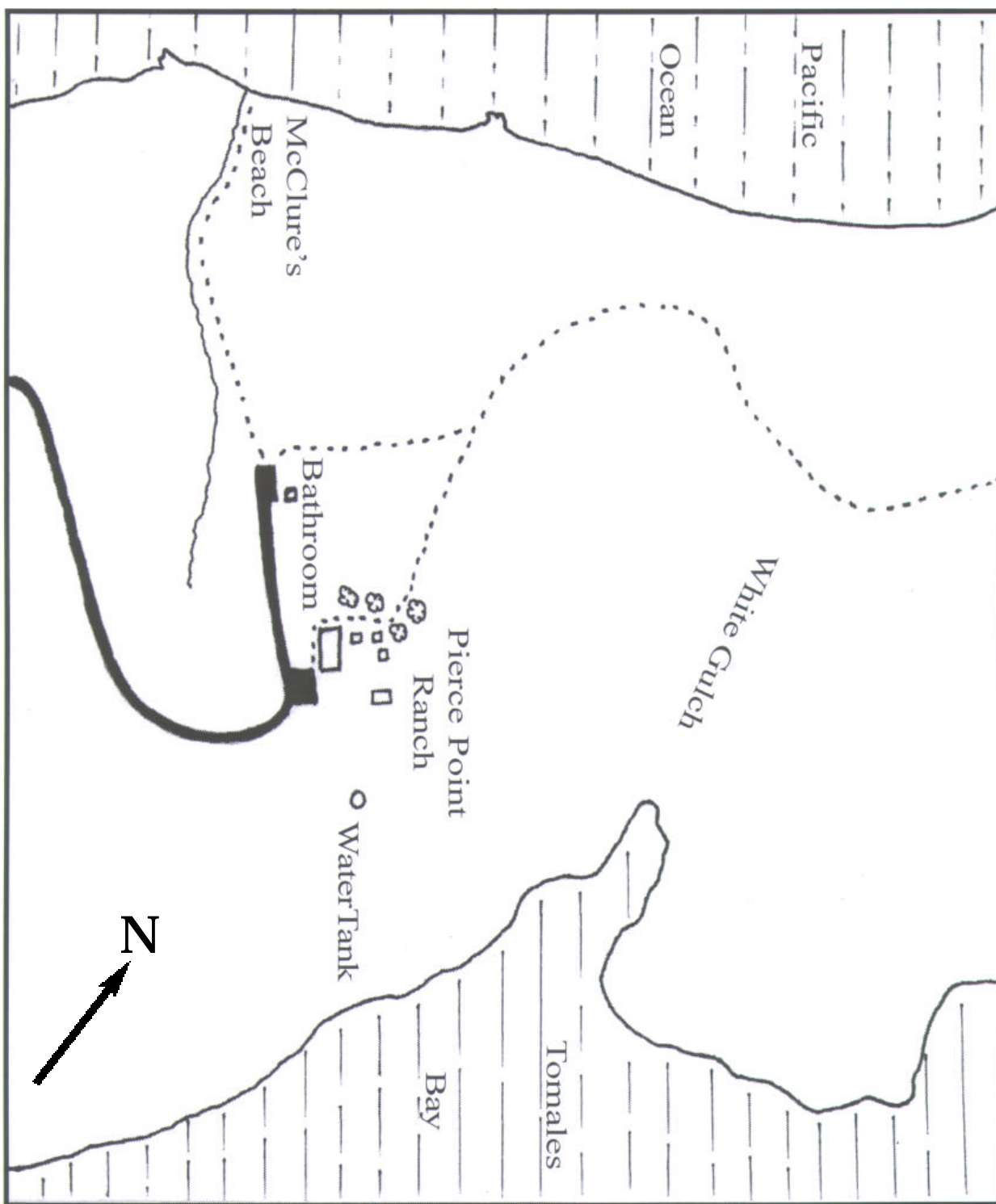
Location		Time	
Behavior	Bull	Cow	Calf

How might today's weather effect elk behavior? What might they do differently if it were rainy? Windy? Sunny?



Mapping: White Gulch

- Orient yourself to the map by locating the Ocean, Tomales Bay, and the trail. You will probably have to turn your map around to have you and your map facing Tomales Bay. Mark your location on the map with an "X".
- Shade the entire area where the herd is located lightly with a pencil. Next, mark where individuals are located within that shaded area by marking "B" for bulls, "C" for cows, "CR" for cows with radio collar, and "CA" for calf.

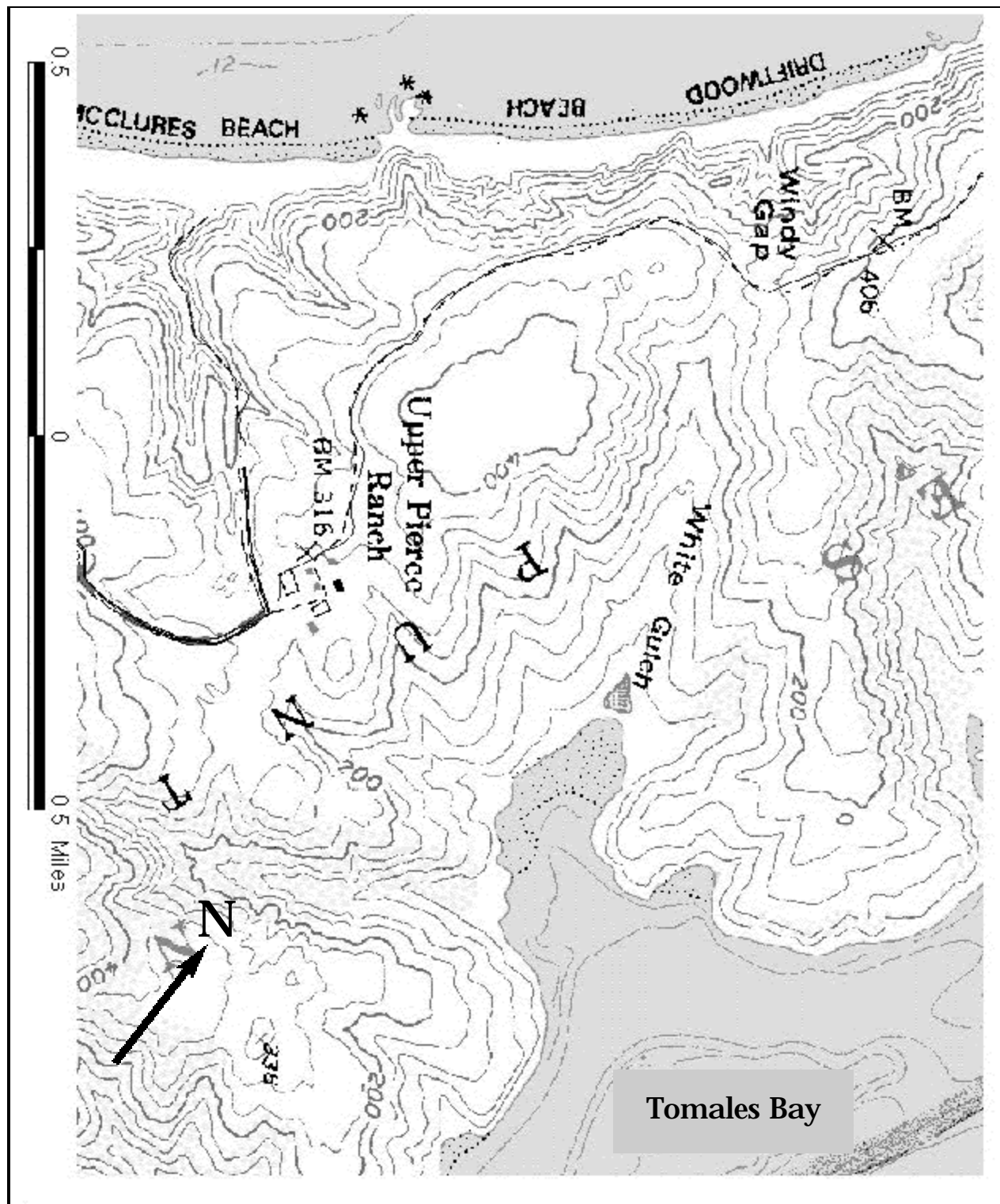


Mapping: White Gulch



Field Journal Sheet

- Orient yourself to the map by locating the Ocean, Tomales Bay, and the trail. You will probably have to turn your map around to have you and your map facing Tomales Bay. Mark your location on the map with an "X".
- Shade the entire area where the herd is located lightly with a pencil. Next, mark where individuals are located within that shaded area by marking "B" for bulls, "C" for cows, "CR" for cows with radio collar, and "CA" for calf.





Mapping: Other Locations

- If you would like to map tule elk in other locations, use the space below. Start by sketching a rough outline of the land and any additional landmarks. Next, mark your location on the map with an “X.”
- Shade the entire area where the herd is located lightly with a pencil. Next, mark where individuals are located within that shaded area by marking “B” for bulls, “C” for cows, “CR” for cows with radio collar, and “CA” for calf.



Field Journal Sheet

Habitat Survey on Tomales Point Trail

Before this area was designated a National Seashore, people used it in a variety of ways. Even today, humans have a direct impact on this habitat by hiking, horseback riding, and living nearby. Think about the human influences on this area and answer the following questions.

What makes this location suitable for tule elk?

Where do the elk get their drinking water?

Circle the animal signs that you see while on the Tomales Point Trail:

scat tracks burrows bones antlers nests other:

In the space below, sketch two types of sign that you have seen:

Describe what this sign tells you about the animal:

Describe what this sign tells you about the animal:



Field Journal Sheet

Exclosure

Look for small (1-acre or less), fenced-in areas within the elk range. These areas are called exclosures. When you see one close to the trail, let your teacher know. Hike very carefully to where you can carefully observe the exclosure.

What do you think these areas exclude and why did researchers build them?

Is the vegetation inside the fenced-in area different from the vegetation outside the exclosure? How and why?

Are all animals "excluded" from entering inside the exclosure, or just larger ones?



Field Journal Sheet

Human Influences on Tomales Point

Before this area was designated a National Seashore, people used it in a variety of ways. Even today, humans have a direct impact on this habitat by hiking, horseback riding, and living nearby. Think about the human influences on this area and answer the following questions.

What signs of historic use do you see?

What signs of recent impact do you see?

What are some of the impacts on Tomales Point from being so close to a major city like San Francisco?

Have you affected any elk today? How?

How Can I Capture My Experiences in a Story, Poem or Drawing?



On-Site Lesson Plan

Students will use their experience with tule elk to create a story, poem, or drawing. Drafts or sketches may be made in their field journals and final writings or drawings completed in class. Students or teachers are able to choose which activities will be completed.

Time required: ½ hour

Location: on-site/classroom/homework

Suggested group size: entire class

Subjects: creative writing; science, language arts

Concepts covered: poetry; creative writing

Written by: Melinda Repko, National Park Service

Last updated: 12/08/00

Student Outcomes

At the end of this activity, students will be able to:

- Reflect on their experiences by sharing a poem, story, or drawing.
- Make emotional connections to the resources.

Materials

To be supplied by teacher:

- Extra paper to be included in field journal

To be photocopied from this guide:

- **How Can I Capture My Experiences in a Story, Poem or Drawing?** field journal sheet

Procedures

1. Include a copy of the **How Can I Capture My Experience in a Story, Poem, or Drawing?** activity sheet in each student's journal.
2. Either choose an activity for students to complete or have students decide which they would like to complete.
3. Allow at least one-half hour to complete this activity in the field. Students may refine their work once back in class.





Extension Ideas

1. Have students complete a variety of the activities, creating a booklet of their creative work.
2. Using canvas material and tempera paint, have students create a mural of their experiences at the Tule Elk Reserve.

How Can I Capture My Experience in a Story, Poem, or Drawing?



Field Journal Sheet

Choose one of the following activities. Use blank paper in your field journal to complete your work.

1. Create a Haiku

A three-line poem originating in Japan based on syllables- not rhyming.

Line 1: five syllables
Line 2: seven syllables
Line 3: five syllables

2. Create a Diamante

This five-line poem is displayed in the shape of a diamond.

Line 1: noun
Line 2: adjective adjective
Line 3: participle participle participle participle
Line 4: noun noun noun noun
Line 5: noun

3. Freestyle Poem

A poem can rhyme or not rhyme. It can be many words or few. The only limitation is your imagination!

4. Create an Outline-Creation

Draw the outline of a tule elk in pencil. Use the outline as a guide to write your words on OR use the outline as a guide to write your words in.

Use words or sentences that describe its characteristics. Hint: if you draw in pencil and write in pen, you can carefully erase the pencil when the ink dries.

5. Create a Comic Strip

Think about the different events that took place while you were visiting the Tule Elk Reserve. Create a comic strip depicting one of these events. Don't forget to give your comic strip a title.

6. Create a Story

Answer the question: "What would be missing from your life if tule elk had gone extinct and you never had the chance to see them?"

How Can We Inspire Others to Protect Tule Elk and Their Habitat?



Students will videotape tule elk on their field visit, and use this medium to foster stewardship with elementary classes. There is also the possibility of showing this medium via local programming.

Time required: 15 minutes at field visit, various amounts of time depending on strategy

Location: Point Reyes National Seashore/ classroom

Group size: small groups

Subject: language arts

Concept covered: stewardship education

Written by: Trudie Behr Scott, Novato School District

Last updated: 11/25/01

On-Site Lesson Plan

Student Outcomes

At the end of this activity, the students will be able to:

- Formalize a presentation on tule elk.

National Science Standard Links (grades 5-8)

This activity is linked to the National Science Standards in the following areas:

- Content Standard F - Populations, Resources, and Environments: Causes of environmental degradation and resource depletion vary from region to region and from country to country; Risks and Benefits: Important personal and social decisions are made based on perceptions of benefits and risks.

Materials

To be provided by the teacher:

- Camcorder to be used on visit

Vocabulary

stewardship





Procedures

1. Research local public access channels. Most are required to show 20 minutes/month local programming OR identify other elementary classes that would be interested in viewing a presentation on tule elk by your class.
2. Secure camcorder/tape for day of field visit. One adult chaperone could rotate with the camcorder to each of the three groups for 5-10 minutes of videotaping. (If you have access to editing equipment, students may tape longer segments).
3. Back at school, have students create a dialogue (to be superimposed on video images) discussing some of the following points.

Why are there tule elk at Point Reyes National Seashore?

What are some threats to tule elk and their habitat?

What can we do to protect a tule elk's right to exist?

What was the most enjoyable aspect of viewing tule elk?

What do we mean by stewardship?

What have we done already to help tule elk?

What would we like to be able to do in the future?

4. When the video is completed, please mail a copy to the project coordinator at Point Reyes National Seashore.

Extension Ideas

1. When have videotaped images been used to persuade populations (World Wars I and II, Echo Park Dam controversy at Dinosaur National Monument, commercials, television)? Encourage students to investigate how media can control our actions and thoughts.